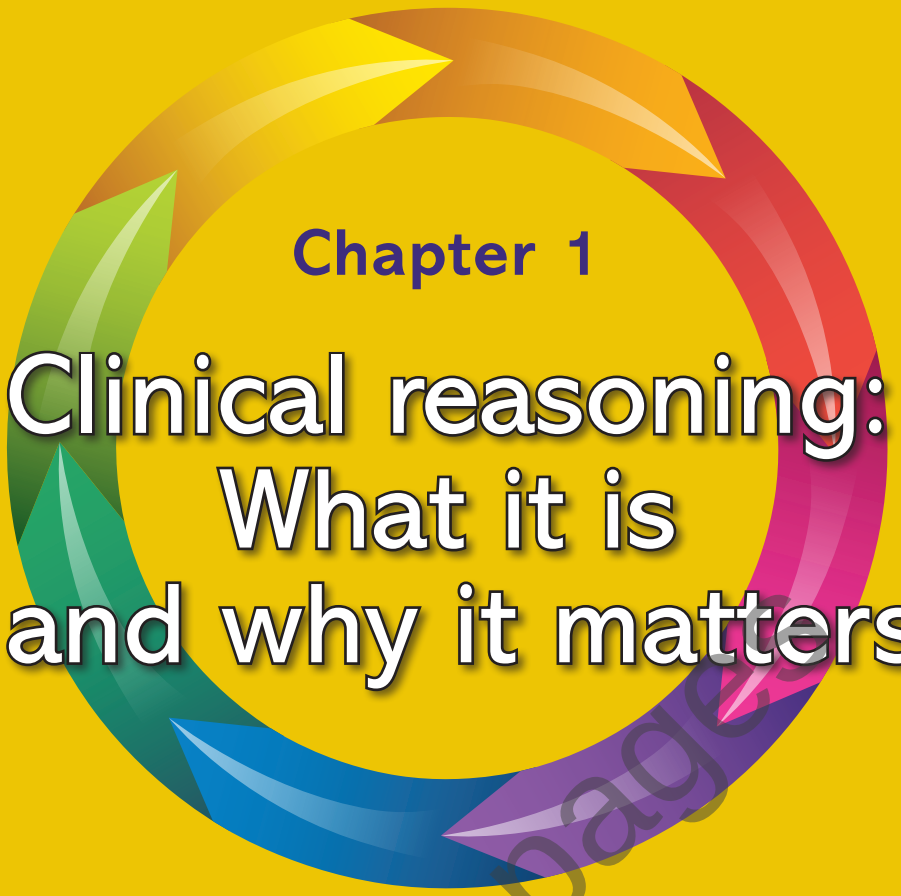

Chapter 1

Clinical reasoning: What it is and why it matters

TRACY LEVETT-JONES and JUDITH SMITH

LEARNING OUTCOMES

Completion of the activities in this chapter will enable you to:

- discuss what 'thinking like a nurse' means
- explain why nursing students need to learn about clinical reasoning
- outline the clinical reasoning process
- explain the relationship between clinical reasoning and critical thinking
- discuss how clinical reasoning errors can adversely affect patient outcomes
- explain how stigmatising, stereotyping, preconceptions and assumptions can negatively impact clinical reasoning
- explore and discuss different types of clinical reasoning errors.

Nurses are the caregivers most directly involved with patients 24/7, responsible for monitoring and assessing clinical changes in patients, intervening when necessary, and communicating changes in status to ensure appropriate intervention and coordination of care. (Duffield et al., 2007)

INTRODUCTION

In this introductory chapter, we explore what 'thinking like a nurse' means. We discuss the importance of clinical reasoning, outline the clinical reasoning process and illustrate how clinical errors are linked to poor reasoning skills. This chapter creates a foundation for the ones that follow and a backdrop to a series of authentic and clinically relevant clinical scenarios.

Learning to 'think like a nurse' is challenging and requires commitment, practice and multiple opportunities for application of learning. However, the benefits are significant for you, as a curious, competent and intelligent nurse, and for the people who will be the recipients of your care. Simply stated, effective clinical reasoning skills will improve the quality of your patient care, prevent adverse patient outcomes and enhance your work satisfaction.

THE CONCEPT OF REASONING

Reasoning is a complex concept that is typically used to describe thinking skills. A number of theories have been used when referring to the cognitive processes that precede decision making. Some theories suggest that decisions are made either rationally or intuitively. The rational decision-making approach includes steps such as identifying the problem, generating alternative solutions, evaluating alternative solutions, choosing a solution, making and implementing a decision, and evaluating the decision's effectiveness (Schoenfeld, 2011). This is similar to the information-processing theory that proposes that decision making follows a rational and logical process (Simmons, 2010). Conversely, the intuitive-humanist model suggests that decision making is often informed by intuition (Johansen & O'Brien, 2016).

Intuitive thinking processes are very fast whereas rational processes are slower, deliberate and more reliable. With experience, healthcare professionals build a repertoire of experiences that allow them to become more skilled at intuitive processing. However, it is important to remember that most reasoning errors occur when rapid intuitive processing is used to make decisions without sufficient thought and rational override (Simmons, 2010), and particularly when preconceptions, assumptions and stereotypes cloud one's judgments.

WHAT DOES 'THINKING LIKE A NURSE' MEAN?

While there are a number of similarities in the way nurses and other healthcare professionals think, there are also significant differences. Unlike many healthcare professionals who 'treat' and 'retreat', therapeutic relationships between nurses and the patients they care for can extend over hours, days or even longer. During this time, nurses maintain constant vigilance and engage in multiple episodes of clinical reasoning for each person, responding to the complex nature of the illness experience in ways that are authentic, holistic and person-centred.

> *'Thinking like a nurse' is a form of engaged moral reasoning. Educational practices must help students engage with patients with a deep concern for their well being. Clinical reasoning must arise from this engaged, concerned stance, always in relation to a particular patient and situation and informed by generalised knowledge and rational processes, but never as an objective, detached exercise.* (Tanner, 2006, p. 209)

WHAT IS CLINICAL REASONING?

Clinical reasoning is a logical, systematic and cyclical process that guides clinical decision making, particularly in unpredictable, emergent and non-routine situations, and that leads to accurate and informed clinical judgments. Clinical reasoning is defined as 'the process by which nurses (and other clinicians) collect cues, process the information, come to an understanding of a patient problem or situation, plan and implement interventions, evaluate outcomes, and reflect on and learn from the process' (Levett-Jones et al., 2010, p. 516). Over the last decade, the clinical reasoning cycle (Figure 1.1), drawn from research undertaken by Levett-Jones et al. (2010) and Hoffman, Aitken and Duffield (2009), has been integrated into nursing, medical and allied health curricula across the world and found to be a sound theoretical model (Theobald & Ramsbotham, 2019; Vierula et al., 2020).

WHY IS CLINICAL REASONING IMPORTANT?

Nurses are required to care for and make decisions about complex patients with diverse health needs. As they are responsible for a significant proportion of the clinical judgments in healthcare, their ability to respond to challenging and dynamic situations requires not only psychomotor skills and knowledge but also sophisticated thinking abilities.

A body of evidence has identified that clinical reasoning skills have a positive impact on patient outcomes while, conversely, nurses with poor clinical reasoning skills often fail to detect patient deterioration, resulting in a 'failure to rescue' (Cooper et al., 2011). Clinical reasoning errors have

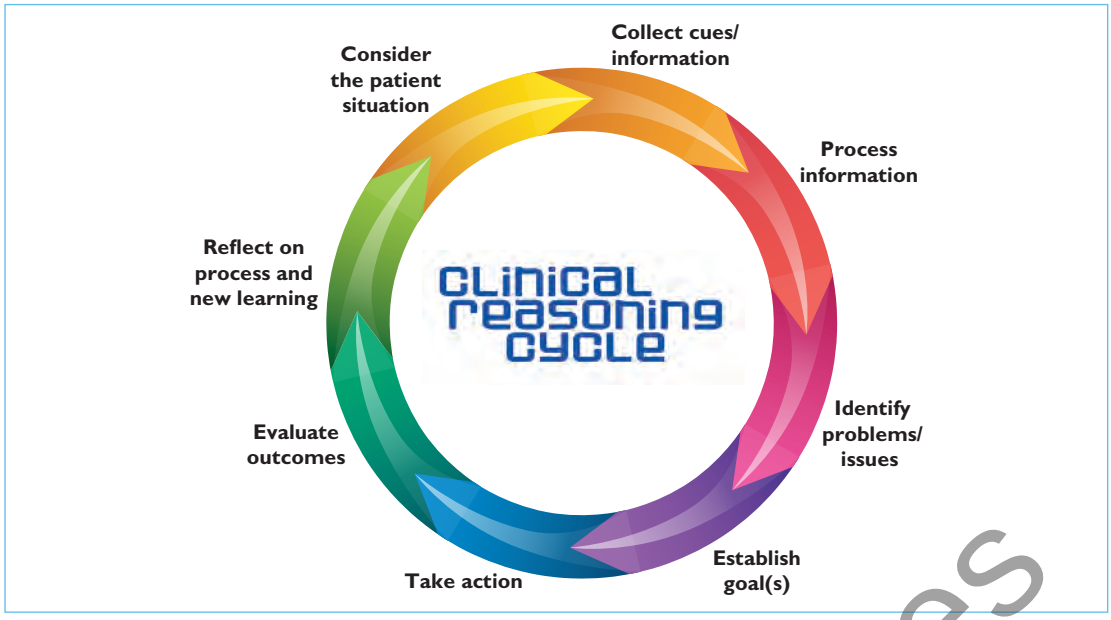

Figure 1.1
The clinical reasoning cycle

Source: T. Levett-Jones, K. Hoffman, Y. Dempsey, S. Jeong, D. Noble, C. Norton, J. Roche, & N. Hickey (2010). The 'five rights' of clinical reasoning: An educational model to enhance nursing students' ability to identify and manage clinically 'at risk' patients. *Nurse Education Today, 30*(6), 515–520.

been implicated as a factor in most adverse patient outcomes (Institute of Medicine, 2010). The reasons for this are multidimensional and include the tendency to make errors in time-sensitive situations where there is a large amount of complex data to process, and difficulties in distinguishing between a clinical problem that needs immediate attention and one that is less acute (Hoffman, Aitken & Duffield, 2009).

THE CLINICAL REASONING PROCESS

A diagram showing the clinical reasoning cycle and describing the nursing actions that occur during each stage is provided in Figure 1.2. The cycle begins at 1200 hours and moves in a clockwise direction through eight stages: *look, collect, process, diagnose, plan, act, evaluate* and *reflect*. Although each stage is presented as a separate and distinct element in this diagram, in reality clinical reasoning is a dynamic process and nurses often combine one or more stages or move back and forth between them before reaching a diagnosis, taking action and evaluating outcomes. Table 1.1 provides an example of a nurse's clinical reasoning while caring for a man following surgery for an abdominal aortic aneurysm.

Stages of the clinical reasoning cycle

Patient Safety Competency Framework (PSCF)

Domain 5–Clinical reasoning

The PSCF specifies that nurses must demonstrate the ability to accurately assess, interpret and respond to individual patient data in a systematic and timely way.

Source: *The Patient Safety Competency Framework for Nursing Students*, https://patientsafetyfornursingstudents.org

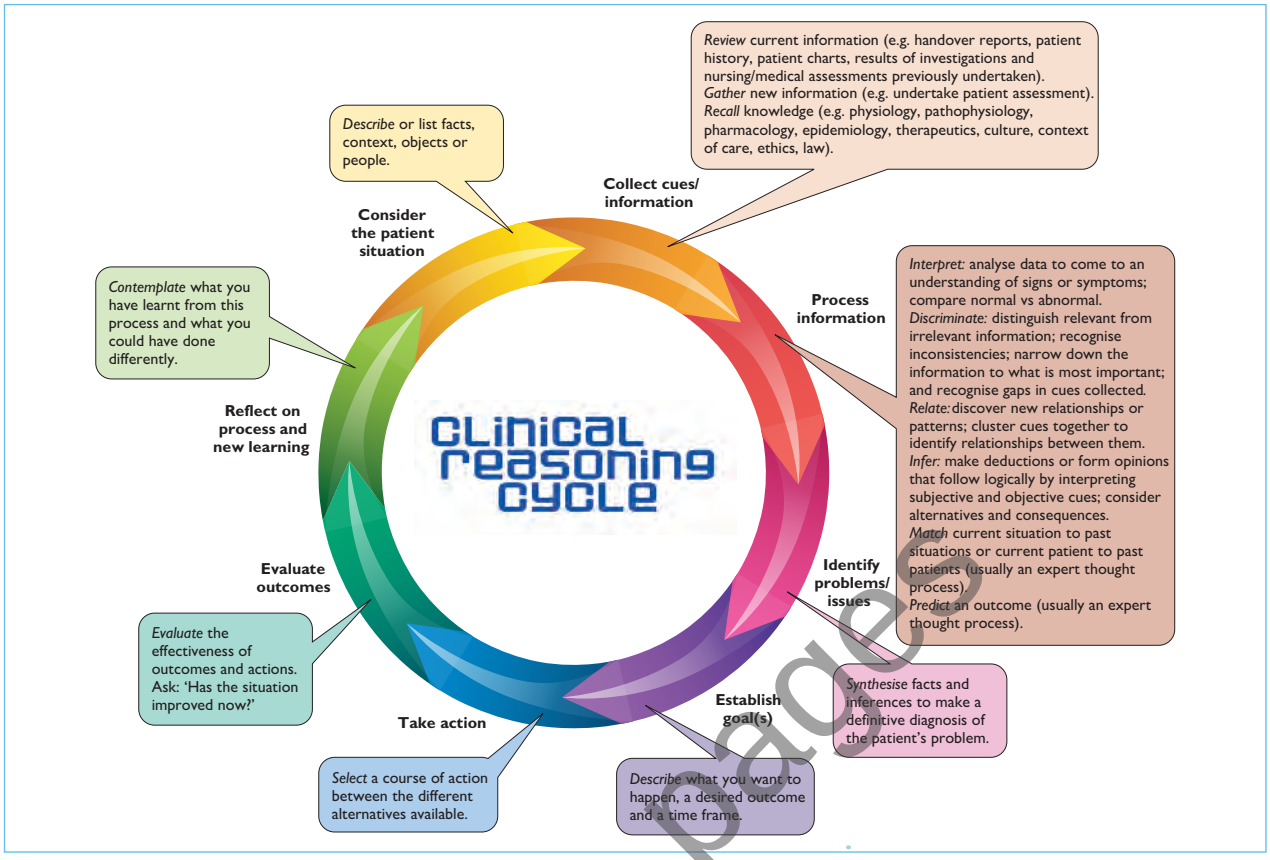

Figure 1.2
The clinical reasoning process with descriptors

Source: Adapted from T. Levett-Jones, K. Hoffman, Y. Dempsey, S. Jeong, D. Noble, C. Norton, J. Roche, & N. Hickey (2010). The 'five rights' of clinical reasoning: An educational model to enhance nursing students' ability to identify and manage clinically 'at risk' patients. *Nurse Education Today, 30*(6), 515–520.

Table 1.1 *Phases of the clinical reasoning cycle with examples*

Process	Description	Example of a nurse's thinking
Consider the patient situation	**Describe** person and context, notice salient features and anticipate emergent issues.	Mr Smith is a 60-year-old man admitted to ICU yesterday following surgery for an abdominal aortic aneurysm (AAA).
Collect cues/ information	**Review** current information (e.g. handover reports, patient history, patient charts, results of investigations and nursing/ medical assessments previously undertaken).	Mr Smith has a history of hypertension and he takes beta-blockers. His BP was 140/80 mmHg an hour ago.
	Gather new information (e.g. undertake patient assessment).	Mr Smith's vital signs are: T 37.6°C, PR 116, RR 20, BP 110/60 mmHg. His urine output is averaging 20 mL/hr. He has an epidural running @ 10 mL/hr.
	Recall knowledge (e.g. physiology, pathophysiology, pharmacology, epidemiology, therapeutics, culture, context of care, ethics, law).	BP and PR are influenced by fluid status. Epidurals can lower the BP because they can cause vasodilation.

Table 1.1 *Phases of the clinical reasoning cycle with examples (continued)*

Process	Description	Example of a nurse's thinking
Process information	**Interpret:** analyse cues to come to an understanding of signs or symptoms. Compare normal vs abnormal.	Mr Smith's BP is low, especially for a person with a history of hypertension. He is tachycardic and oliguric.
	Discriminate: distinguish relevant from irrelevant information; recognise inconsistencies; narrow down information to what is most important; and recognise gaps in cues collected.	Mr Smith is slightly febrile. However, I'm more concerned about his hypotension, tachycardia and oliguria.
	Relate: discover new relationships or patterns; cluster cues together to identify relationships between them.	Although Mr Smith's hypotension, tachycardia and oliguria could be signs of impending shock, his BP decreased soon after his epidural rate was increased.
	Infer: make deductions or form opinions that follow logically by interpreting subjective and objective cues; consider alternatives and consequences.	Mr Smith's BP is probably low because of vasodilation caused by his epidural and blood loss during surgery.
	Match current situation to past situations or current patient to past patients (usually an expert thought process).	AAAs are often hypotensive post-op.
	Predict an outcome (usually an expert thought process).	If I don't give Mr Smith a fluid challenge, he could develop acute kidney injury or go into shock.
Identify the problem/issue	**Synthesise** facts and inferences to make a definitive nursing diagnosis.	Mr Smith has reduced cardiac output related to decreased intravascular volume and vasodilation evidenced by hypotension, tachycardia and oliguria.
Establish goals	**Describe** what you want to happen, a desired outcome and a time frame.	To improve Mr Smith's cardiac output, haemodynamic status and urine output over the next 1–2 hours.
Take action	**Select** a course of action between the different alternatives available.	I will phone the medical officer (using ISBAR) to request an order for a fluid challenge, increased IV rate and metaraminol if needed.
Evaluate	**Evaluate** the effectiveness of outcomes and actions. Ask: 'Has the situation improved now?'	Mr Smith's BP has now improved and his urine output is averaging > 30 mL/hr. I'll continue to monitor him as he may need another fluid challenge or metaraminol later.
Reflect on process and new learning	**Contemplate** what you have learnt from this process and what you could have done differently.	I now understand . . . I should have . . . Next time I will . . .

Sources: K. Hoffman (2007). A comparison of decision-making by 'expert' and 'novice' nurses in the clinical setting, monitoring patient haemodynamic status post abdominal aortic aneurysm surgery [Unpublished PhD thesis]. University of Technology Sydney; and T. Levett-Jones, K. Hoffman, Y. Dempsey, S. Jeong, D. Noble, C. Norton, J. Roche, & N. Hickey (2010). The 'five rights' of clinical reasoning: An educational model to enhance nursing students' ability to identify and manage clinically 'at risk' patients. *Nurse Education Today*, *30*(6), 515–520.

1. Consider the patient situation

During the first stage of the clinical reasoning cycle, the nurse 'anticipates' potential issues, begins to gain an initial impression of the patient and identifies salient features related to the situation. This first impression, which is sometimes referred to as 'noticing', is critical but can be negatively influenced by the nurse's preconceptions, assumptions and biases (see Table 1.2 later in this chapter).

2. Collect cues/information

The importance of the cue collection stage of the clinical reasoning cycle cannot be underestimated, as early subtle cues when missed can lead to adverse patient outcomes (Levett-Jones et al., 2010). During this stage, the nurse begins to collect relevant information about the patient. He or she reviews the information that is currently available, including the handover report, the patient's medical and social history, clinical documentation, electronic medical records, and other available information.

The nurse then identifies any additional information that is required, such as vital signs and/or a focused health assessment, and focuses on collecting specific cues relevant to the person's condition at this point in time. Importantly, it is during this stage that the nurse elicits the patient's and family's concerns and understanding of the situation.

Lastly, the nurse recalls knowledge related to the patient's particular situation. A breadth and depth of knowledge is therefore imperative for accurate clinical reasoning. Unless a nurse has a deep understanding of the applied sciences, especially pathophysiology, the ability to make sense of and correctly interpret cues will be impacted.

3. Process information

In the third stage of the clinical reasoning cycle, the nurse interprets the cues that have been collected and identifies significant aberrations from normal. Cues are grouped into meaningful clusters, clinical patterns are identified, inferences are made and hypotheses are generated. During this stage, experienced nurses call upon their wide repertoire of previous clinical experiences matching the salient features of the patient's presentation with other similar situations. They are also able to 'think ahead', anticipating potential outcomes and complications depending on the particular course of action (or inaction).

4. Identify problems/issues

> *Improving the diagnostic process is not only possible, but it also represents a moral, professional, and public health imperative.* (Institute of Medicine, 2010)

The fourth stage of the cycle is where the nurse synthesises all of the information that has been collected and processed in order to identify the most appropriate nursing diagnoses. A three-part 'actual' diagnosis or a two-part 'risk' diagnosis may be formulated. The accuracy of this step is critical as the nursing diagnosis is used to determine appropriate goals of care and subsequent nursing actions. The following examples are adapted from Berman et al. (2020).

Nursing diagnosis

1. A nursing **diagnosis** is a problem that becomes apparent following a thorough and systematic interpretation of subjective and objective data. An actual nursing diagnosis consists of the person's **problem**, the related **aetiology** (causal relationship between a problem and its related or risk factors), and supporting **evidence/**cues.

   For example: *Dehydration* related to *post-operative nausea* and *vomiting* evidenced by *dry mucous membranes, oliguria, poor skin turgor, hypotension* and *tachycardia*.
2. A **risk nursing diagnosis** is a clinical judgment about a potential problem where the presence of **risk factors** indicates that a problem may develop unless nurses intervene appropriately. A risk diagnosis is written in two parts and does not include signs and symptoms.

   For example: *Risk of infection* related to *skin tear* and *type* 2 *diabetes.*

5. Establish goals

The fifth stage of the cycle is where the nurse clarifies and prioritises the goals of care depending on urgency. Goals must be SMART (**S**pecific, **M**easureable, **A**chievable, **R**ealistic and **T**imely) and designed to address the nursing diagnoses previously identified. Without SMART goals, the nurse cannot determine the efficacy of their actions.

6. Take action

In this stage the nurse selects the most appropriate course of action to achieve the goals of care and address the nursing diagnoses. The nurse also decides who is best placed to undertake the interventions, and who should be notified and when. During this stage, members of the healthcare team may be consulted and collaborative decision making undertaken.

7. Evaluate outcomes

This stage requires the nurse to re-examine objective and subjective data (patient cues) in order to evaluate how effective the nursing interventions have been, and whether the patient's problem has been addressed. If the evaluation identifies that the patient's condition has not improved, the nurse reconsiders the patient's situation and seeks to identify a more appropriate course of action. There may be a need for further consultation and/or to begin the clinical reasoning process again.

8. Reflect on process and new learning

Effective clinical reasoning requires both cognitive and metacognitive (thinking about one's thinking) skills in order to develop the ability to 'think like a nurse'. Thus, the final step of the clinical reasoning cycle involves reflection. This requires nurses to critically review their practice with a view to refinement, improvement or change. Reflection is intrinsic to learning. It is a deliberate, orderly and structured intellectual activity that allows nurses to process their experience and explore their understanding of what they did, why they did it, and the impact it had on themselves and others (Boud, 2015).

Nurses reflect *in* and *on* practice by asking themselves questions such as:

- What happened and why?
- What was done well?
- What could have been done better?
- What should be done differently if presented with the same or similar situation?
- What has been learnt that can be used when caring for other patients in the same or similar situations?
- What is needed to improve future practice, for example more knowledge about a specific condition or more practice in particular skills?

CLINICAL REASONING AND CRITICAL THINKING

> *As a client's status changes, the nurse must recognise, interpret and integrate new information, and make decisions about the course of action to follow. For satisfactory client outcomes clinical reasoning goes hand in hand with critical thinking.* (Martin, 2002, p. 245)

Clinical reasoning is the practical application of critical thinking skills to clinical situations (Victor-Chmil, 2013). Clinical reasoning is dependent on a critical thinking 'disposition'. Critical thinking is a complex collection of cognitive skills and effective habits of the mind, and has been described as the process of analysing and assessing thinking with a view to improving it (Paul & Elder, 2007). To think like a nurse requires you to learn the knowledge, ideas, skills, concepts and theories of nursing, and develop your intellectual capacities to become a disciplined, self-directed, critical thinker capable of clinical reasoning (Paul & Elder).

Nurses who are critical thinkers strive to be clear, accurate, precise, logical and fair when they listen, speak, read and write (Paul & Elder, 2007). Critical thinkers think deeply and broadly,

eliminating irrelevant, inconsistent and illogical thoughts as they reason about patient care. The quality of their thinking improves over time and through reflection. Below is a list of attributes nurses need in order to develop their critical thinking and clinical reasoning skills (Rubenfeld & Scheffer, 2006, pp. 16–24).

- **A holistic and contextual perspective**—consideration of the whole person, taking into account the entire situation, including relationships, background and environment
- **Creativity**—the ability and desire to generate, discover or restructure ideas, and to imagine alternatives
- **Inquisitiveness**—a thoughtful, questioning and curious approach, and an eagerness to explore possibilities and alternatives
- **Perseverance**—a dedication to the pursuit of knowledge despite any obstacles that are encountered
- **Intuition**—insightful patterns of knowing, brought about by previous experiences and pattern recognition
- **Flexibility**—the capacity to adapt, modify or change thoughts, ideas and behaviours
- **Integrity**—seeking the truth through sincere, honest processes, even if the results are contrary to one's assumptions or beliefs
- **Reflexivity**—contemplation of assumptions, thinking and behaviours for the purpose of deeper understanding and self-evaluation
- **Confidence**—a firm belief in one's reasoning abilities
- **Open-mindedness**—receptiveness to different views and sensitivity to one's biases, prejudices, preconceptions and assumptions.

QUESTIONING ASSUMPTIONS AND UNDERSTANDING ERRORS

Nurses are human and we make the same kinds of thinking errors in our practice as we do in our day-to-day lives. Sometimes we overlook or misinterpret the significance of an important cue, or we jump to conclusions or fail to take into account alternative possibilities or options. Additionally, preconceptions, assumptions, biases, stereotypes and stigmatism can negatively influence our clinical reasoning and in some cases even prevent clinical reasoning from occurring. We may be unaware of the assumptions and prejudices that we hold as they are often long-standing and deeply embedded. For this reason, nurses must develop humility, insight and self-awareness by deliberately reflecting on their biases and preconceptions. Failure to do so can undermine the accuracy of clinical reasoning and consequently patient safety. Nurses can help avoid clinical reasoning errors by being humble, mindful and reflective, and by using the multitude of decision-support resources available to help them make a decision. They can also maintain a healthy scepticism and make it a habit to ask: 'What is influencing my thinking about this patient?', 'Could my interpretation be flawed?' and 'What other nursing diagnosis is possible in this situation?'.

Table 1.2 provides a list of clinical reasoning errors, many of which arise because of flawed assumptions and beliefs. These errors are then illustrated in the narratives that follow.

Examples of clinical reasoning errors

The clinical reasoning errors listed in Table 1.2 are illustrated with authentic clinical narratives. As you read these narratives, it will become evident that even experienced, committed and well-intentioned healthcare professionals can make errors if they allow their thinking process to be clouded by assumptions, preconceptions and stereotypes. Environmental and situational factors such as noise, fatigue, stress, multitasking and interruptions can also impede rational thinking processes. As you read these examples, it is important to reflect on your own biases and prejudices, and any personal or contextual factors that negatively influence your thinking, as this will enhance your self-awareness, emotional intelligence and clinical reasoning ability.

Table 1.2 *Clinical reasoning errors*

Error	Definition
Anchoring	The tendency to lock onto salient features in the patient's presentation too early in the clinical reasoning process, and failing to adjust this initial impression in the light of later information. This error is compounded by confirmation bias.
Ascertainment bias	When a nurse's thinking is shaped by prior assumptions and preconceptions; for example, ageism, stigmatism and stereotyping.
Confirmation bias	The tendency to look for confirming evidence to support a nursing diagnosis rather than look for disconfirming evidence to refute it, despite the latter often being more persuasive and definitive.
Diagnostic momentum	Once labels are attached to patients, they tend to become stickier and stickier. What started as a possibility gathers increasing momentum until it becomes definite and other possibilities are excluded.
Fundamental attribution error	The tendency to be judgmental and to blame patients for their illnesses (dispositional causes) rather than examine the circumstances (situational factors) that may have been responsible. Patients with a mental illness, and from minority or marginalised groups, are at particular risk of this error.
Overconfidence bias	A tendency to believe we know more than we do. Overconfidence bias reflects a tendency to act on incomplete information, intuition or hunches. Too much faith is placed on opinion instead of carefully collected cues. This error may be augmented by anchoring.
Premature closure	The tendency to accept a nursing diagnosis without sufficient evidence and before it has been fully verified. This error accounts for a high proportion of inaccurate or incomplete nursing diagnoses.
Psych-out error	People with a mental illness are particularly vulnerable to clinical reasoning errors, and co-morbid conditions may be overlooked or minimalised. A variant of this error occurs when medical conditions (such as hypoxia, delirium, electrolyte imbalance and head injuries) are misdiagnosed as psychiatric conditions.
Unpacking principle	Failure to collect and unpack all of the relevant cues and consider differential diagnoses may result in significant possibilities being missed.

Source: Adapted from P. Croskerry (2003). The importance of cognitive errors in diagnosis and strategies to minimize them. *Academic Medicine, 78*(8), 1–6.

Anchoring

Working as a nurse educator, I had been paged to come to PACU (post-anaesthetic care unit). Two RNs were seeking advice about the management of a patient (Mrs L) who had had a left hip replacement and was in severe pain, very distressed and calling out loudly and incoherently. The anaesthetist had been notified but was in theatre with another patient. Mrs L had been given morphine by the anaesthetist before being transferred to recovery. As ordered, she was given three further bolus doses of morphine at 3-minute intervals but with minimal effect. The nurses were encouraging her to use her PCA button but she was not coherent enough to comply. I tried to do a thorough pain assessment but was hampered in my attempts as the patient was unable to reply to my questions. I did an assessment of the wound and found that the dressing was dry and intact and the bellovac draining a small amount. There was a small amount of urine in the catheter bag. I examined the area surrounding the wound, convinced that there must be a surgical problem. But it appeared normal and I could see no obvious reason for the pain.

Time was passing without any improvement and we were all becoming anxious and concerned about Mrs L's distress and pain. I was about to phone the anaesthetist again but decided to check her wound one more time. In the process, I briefly noticed that Mrs L's catheter had not been taped to her leg and was actually lying under her thigh. Lifting it over her leg I saw that it had also been kinked. As I untwisted it, urine began to quickly flow. Within minutes there was close to 1600 mL in the catheter bag and Mrs L had drifted off into a morphine-induced

state. Her resps were now 6 and oxygen sats 85 per cent. We increased the oxygen to 10 L per minute with little effect and phoned the anaesthetist for an order of naloxone as she had become narcotised. Had I not anchored onto the belief that Mrs L's pain must be coming from the surgical site I would have done a more comprehensive assessment, identified the cause of her pain, not administered as much morphine, and prevented respiratory depression from occurring. Checking that catheters are draining properly and not kinked or blocked became part of my routine post-operative patient assessment following this experience.

Distinguished Professor Tracy Levett-Jones
University of Technology Sydney

Ascertainment bias

While employed as a mental health nurse in a general practice, I assessed a 65-year-old woman, Alice (pseudonym), who was referred by her general practitioner (GP) as he was concerned about her mental state. Alice had been diagnosed three years prior with the degenerative neurological condition, amyotrophic lateral sclerosis (ALS). She was divorced, lived alone in a council flat in a small seaside village and had limited contact with her daughter and grandchildren who lived six hours away. Alice had a prior history that included childhood sexual abuse, a previous suicide attempt (in the context of domestic violence) and two episodes of major depression which had responded well to psychotropic medication and supportive psychotherapy.

Although Alice had significant physical symptoms that affected her mobility at times, she described having managed well until four months ago when her relationship with her daughter had deteriorated severely. The abandonment had increased her sense of isolation and this estrangement appeared to have been a trigger for a relapse into major depression, with decreased motivation, tearfulness, disordered sleep, loss of appetite and a heightened sense of hopelessness and suicidal ideation. Further discussion revealed that her GP had initiated a neurological review, which revealed minimal deterioration in physical functioning, and an aged care assessment (ACAT) with a view to increasing the level of support services available to Alice.

After consultation with Alice's GP, it was agreed that a psychiatrist review was warranted and I prepared a comprehensive referral to the mental health services. At the time, I was working part-time with the Community Mental Health Team and thus was present at the intake meeting where all referrals were reviewed as part of a multi-disciplinary team process. The nurse from the Acute Care Service responsible for presenting the referrals to the team commenced reading the referral. Before he had finished, he commented, 'This is a waste of time; of course the woman's depressed, who wouldn't be with a degenerative illness; besides, she's old.' Another team member responded, 'Tell the GP to refer her to palliative care.'

Sadly for Alice, the mental health service declined a psychiatrist review; the Mental Health Service for Older Persons likewise declined a review and recommended instead that the application process for placement in an aged care facility be started. Alice's 'real' issues were not addressed because of the ageism and preconceptions of the mental health team.

Associate Professor Rachel Rossiter
Charles Sturt University

Diagnostic momentum and confirmation bias

At handover on the second week of my third-year placement in an emergency department I learnt that one patient I was to assist in caring for was a young man of 16 with queried hepatitis A. It was at this point my clinical reasoning errors began. The 'bandwagon effect' known as diagnostic momentum took over and I found myself treating this young man as if his diagnosis had been confirmed. This was compounded by confirmation bias when he indicated that his abdominal pain was located at the site of his liver. As it turned out, the young man had gastroenteritis. The one strength I took out of this episode was my capacity to review current information, gather cues and recall knowledge to form a nursing diagnosis, even though in this case it was erroneous. Of course, my weakness was jumping to conclusions before all the information and cues were gathered. My thinking in this episode was affected by my desire to sound 'clever' to my mentor and the other nurses, so as to establish a little bit of 'credibility' in the ED. I have come to realise now that the only way to have 'credibility' is to be more critical in my thinking. My strategies for addressing the weaknesses exhibited in this episode are to continue to gather cues, use current information and the recall of knowledge prior to forming a nursing diagnosis.

Source: Adapted from Levett-Jones et al. (2010) Learning to think like a nurse, *Handover for Nurses, 3*(1): 15–20.

Fundamental attribution error

This incident occurred when I was a newly registered nurse working on a medical ward. The patient was an elderly man (70+ years) who was admitted for a stroke and had mild hemiparesis. The man appeared to be extremely resistive to our efforts to help him become as independent as possible. He wanted a great deal of assistance with his activities of daily living—more than would normally be required for his level of disability. He required constant encouragement to participate in any sort of physical activity, no matter how minimal. The man was eventually transferred to a rehabilitation unit. Some weeks later he returned to our ward as he would 'not participate' in his rehabilitation program. The handover reported that he had 'failed rehab'. I judged him on his previous behaviour and (based on the information from the rehab staff) I assumed he was just lazy. On his return to my ward he continued to constantly want assistance but I insisted (often strenuously and, on reflection, harshly) that he walk and participate in his own care. Around this time, he also started to mention pain which hadn't really featured till then. He was investigated and was found to have widespread bony metastasis from an unknown primary cancer. He died three weeks later. I was astounded and felt very guilty as I had judged this man, making assumptions that were later proven to be erroneous. I did, however, ensure that this man received the very best care for the last three weeks of his life.

Doctor Jennifer Dempsey
Former Senior Lecturer at The University of Newcastle

Overconfidence bias and unpacking principle

A 52-year-old male, John (pseudonym), was brought into the emergency department by the police and the local mental health team. John was in breach of his community treatment order. On presentation, John had slurred speech, was unable to stand or walk unassisted and was very aggressive. A code black was called after the triage nurse was punched and the attending nurse was bitten whilst obtaining a blood pressure. The emergency medical officer and two security personnel responded, with John being restrained. I had been asked to obtain a patient history. However, upon presentation, I had already labelled John as an alcoholic who was homeless and suffering from some sort of mental illness. I didn't see the purpose of taking a full patient history and thought that we just needed to sober him up and then release him back to the mental health team. The clinical reasoning errors that influenced my attitude and thinking included overconfidence bias and unpacking principle: I did not believe this patient had any real medical issues due to my labelling him as an alcoholic. Due to my assumptions, I did not collect a thorough history or assessment of this patient and disregarded the real medical and social problems that he was presenting with. John was homeless and had been for the past six years since his wife, daughter and two grandchildren had been killed in a car accident; he was simply unable to function anymore. Three years ago, John had come to the attention of the mental health team and he was diagnosed with an anxiety disorder, delusions, paranoia and panic attacks. He was also misusing alcohol and drugs, however, he had been clean and sober for the past 18 months. It was later established that, on presentation, John had a blood alcohol reading of zero. He was diagnosed with severe dehydration and a mild cerebrovascular haemorrhage. I was fortunate to have been supervised throughout this experience so my personal judgments did not endanger this patient. However, this has been an invaluable experience for me as I have learnt that you need to treat every patient individually without judgment, and that a thorough history is essential to understand what may be impacting on the patient's health status. I will endeavour to remember this in the future and not allow my biases to cloud my thinking.

Source: Adapted from Levett-Jones et al. (2010) Learning to think like a nurse, *Handover for Nurses, 3*(1):15–20.

Premature closure

This incident occurred while I was working as a registered nurse in an emergency department (ED). I was looking after a 7-year-old boy named Jamie (pseudonym). Jamie had been playing with his older brothers in the park when he fell, landing heavily on his right arm. On arrival into the ED, Jamie appeared very distressed: he was crying, pale and clutching his right arm. Jamie stated that his arm hurt 'really bad' and when asked to point to the pain, he indicated the whole forearm and elbow. On initial inspection, there was an obvious deformity to his right wrist. An X-ray of Jamie's wrist confirmed a transverse fracture of his distal radius. As it was not displaced, the doctor decided management of his fracture would include pain relief and a plaster backslab to his wrist. Jamie was given intranasal fentanyl with good pain relief and was able to tolerate the application of the backslab.Jamie's presentation appeared to be a straightforward case of a fractured distal radius. Therefore, we were surprised when approximately 30 minutes after the administration of the fentanyl and the application of the backslab, Jamie became very unsettled and inconsolable stating the pain was 'really, really

bad'. He continued clutching his arm and was rocking back and forth in the bed, and would not let his mother comfort him. Jamie was given oral paracetamol for the pain. Neurovascular observations were conducted and were normal. Jamie's mum stated that this behaviour was unlike Jamie. The doctor determined that Jamie was overtired and stressed from the 'ordeal' and it would be best to discharge him home to rest. From my previous experience of caring for children with a distal radius fracture, this management seemed appropriate, even though his pain response was inconsistent with what would normally be expected. Later that evening, Jamie and his mother re-presented to the ED. Jamie had not been able to settle at home; his mother had given him a further dose of paracetamol as well as ibuprofen with no effect. Jamie was now complaining of pins and needles in his fingers. Jamie appeared pale and was tachycardic and diaphoretic. Following a review by the orthopaedic registrar, Jamie was sent for further X-rays where it was discovered that, in addition to the fractured distal radius, he had a fracture in his right olecranon which was impinging on his ulnar nerve and required immediate surgical repair. Failing to note the second fracture is an example of premature closure. Although the evidence (X-ray) supported the diagnosis of a fractured radius, it did not account for the excessive pain and lack of response to analgesia. 'When the diagnosis is made the thinking stops' (Croskerry, 2003). After the initial diagnosis, a reasonable alternative for Jamie's ongoing pain and symptoms was not sought and, instead, Jamie was considered to be 'overtired and stressed'. This was an example of ascertainment bias and was based on the flawed belief that children can be overly demonstrative in hospital environments.

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Psych-out error

Jill (pseudonym), a 44-year-old woman previously diagnosed with schizophrenia, was admitted to ICU in a catatonic state. Catatonia is linked to schizophrenia and is also associated with depression, anxiety, and severe stress. It can also occur as an atypical reaction to antipsychotic medications. My mentor and I found that Jill was tachycardic, diaphoretic, tachypneic and febrile. These observations were only moderately outside normal limits and, at the time, I believed that they were most likely due to anxiety consistent with Jill's mental illness. I admit that, from the start, I had made the clinical reasoning error described as psych-out error by seeing her as primarily mentally ill. I had assumed that her previous admissions and psychological state were the most likely causes of her present physiological condition. I searched her file for supporting evidence but instead my attention was drawn to the fact that she had recently commenced the antipsychotic drug clozapine. After reviewing Jill's condition, the doctors decided that she required specialist care and transferred her to a larger hospital. On reviewing evidence-based literature, I identified the adverse effects of clozapine. I could now appreciate that her condition was far more serious than I had first thought, with a possibility of neuroleptic malignant syndrome (NMS). NMS is a severe, potentially life-threatening response to antipsychotic therapy. The most obvious symptoms include muscle rigidity, tachycardia, tachypnoea, diaphoresis and fever. Jill's symptoms were consistent with all of the described signs, including her elevated temperature. On analysing my thinking, I recognised that, as a third-year student, my views were impacted by my lack of knowledge and experience which led to several naïve and biased judgments.

Source: Adapted from Levett-Jones et al. (2010) Learning to think like a nurse, *Handover for Nurses, 3*(1): 15–20.

CONCLUSION

This chapter has outlined the clinical reasoning process and emphasised that clinical reasoning skills are imperative for safe and effective nursing practice. The unfolding stories throughout the remainder of this text will capture your clinical imagination and provide opportunities for cognitive rehearsal of the clinical reasoning process. Repeated exposure to these meaningful clinical scenarios will enhance your acquisition of in-depth, clinically relevant knowledge and storage in your long-term memory; and, as you become immersed in these authentic stories, you will develop memory schemes for responding appropriately to diverse clinical problems.

Nursing and Midwifery Board of Australia (NMBA) *Registered Nurse Standards for Practice* The NMBA's *Registered Nurse Standards for Practice* (2016) state that registered nurses must use a variety of thinking strategies and the best available evidence in making decisions and providing safe, quality nursing practice within person-centred and evidence-based frameworks.